



Minutes of Meeting

Technical Session, ICdA office Brussels, Belgium, 6 November 2019, 12:00-16:30

Attendance list

REPRESENTATIVE

1. Howard Winbow
2. Patrick de Metz
3. Ann Vos
4. Paul Kolisnyk (by phone)
5. Robert Van Quickenberghe
6. Günter Halle
7. Inge Maes

MEMBER COMPANY

James M Brown Ltd.
SAFT S.A.
IZA (Nyrstar)
IZA (Teck)
Flaurea Chemicals
IZA (Glencore)
Metallo

ORGANIZATION

1. Mik Gilles
2. Noömi Lombaert
3. Frank Van Assche

STAFF

ICdA
ICdA
IZA

All participants accepted to comply with the Statement of Compliance as shown on slide #3 of Annex 1

REACH AUTHORISATION

From information received just before the meeting we can now confirm that the New list (10th recommendation list) is explicitly not on the agenda of the MSC-67 meeting (9-11 December) but it is on the next MSC-68 meeting (3-7 February 2020). The timeline will not be affected much because the MSC will immediately take it further and not delay a conclusion to the following MSC-69 meeting in April. The slides presented at the meeting are updated to reflect this change and added in annex to this report.

The 3rd workshop on preparing for authorization, which the REACH consortium intended to organize early January 2020 will now be organized on February 12th 2020.

REVISION OF THE CARCINOGENS AND MUTAGENS DIRECTIVE (CMD)

The amendment includes the option to have a biologic limit value (BLV) in place. The question was raised what such limit implies. In the CMD, it is not specified but under CAD (Chemical Agents Directive), there are a number of actions listed when the BLV is exceeded. Inge Maes informed us that ILA recommends removing workers if the BLV is exceeded. However, it should be added that the existing BLV for Pb in the CAD is considered to be much too high and will likely be lowered.

In EU, many different legislations and regulations exist implementing a wide variety of limit values. Mostly, local occupation doctors follow these national limit values.



The majority of ILA members follow the ILA guidance and its limit value, rather than the higher national limit values.

Concerning the action levels described in the 2018 ICdA Guidance, the attendees agree that the graph taken from the ICdA Guidance (see Annex I, slide 16) is still ok and should not be changed.

EU-OSHA in Bilbao has been given the assignment to assess the value of implementing a BLV in occupation exposure control. In a recent call with Mrs Schneider, we were told that they are interested to see our information on monitoring but that the work hasn't started yet. In order to be efficient, they asked us to wait until the work will start. OSHA will contact us at that time.

THE ICDA CADMIUM OCCUPATIONAL BIO-MONITORING PROGRAM

The results of the OCdBio11 were presented. 38 plants with over 4500 bio-monitored workers participated in 2018.

Paul Kolisnyk asked if information on smoking habits is collected. Such info is not collected, neither on gender or age of individual samples. The information is confidential and collecting this info is only possible if we assure individual privacy. The more detail we ask, the more problematic it becomes to assure this privacy. There is also no link between reported data from urine and from blood samples. So ICdA cannot match these numbers to get a more in depth understanding of interaction between both.

Why is the trend going down? The fact that more "clean" plants are participating could affect this trend. According to Howard, values should be considered less exact when they are high. From experience, he sees that they can fluctuate a lot between two samplings. The low values tend to be much more stable.

It was also mentioned that there are other factors for removal besides high cadmium body burden: heavy smokers, dietary issues, change of work position for other reasons than exposure,...

THE ICDA CADMIUM OCCUPATIONAL AIR-MONITORING PROGRAM

The results of OCdAIR6 were presented. Although each EU member state has an OEL in place, we only received data from 23 plants.

It was discussed what ICdA can do to improve the situation. Patrick suggested to change the look of the data collection template to make it look less complex.

There are still a large proportion of SEGs that are inconclusive. To allow the mathematical calculation of statistical values like a geometric mean, a 90th percentile or the 70% confidence interval of the 95th percentile require a minimum number of samples. In many SEGs, there are not sufficient samples available to do the calculation and hence they become non-conclusive.

Data on OCdAIR1&2 are not included because data quality was too poor to integrate them.

Frank mentioned that not the EN689 criteria (70% confidence interval of the 95th percentile) is used by ECHA but rather the 70, 90 or 95th percentiles, with lower percentiles typically used when there are many data point available. Frank suggested to address the over-conservative approach of EN689 for compliance assessment in a multi-metallic workgroup at Eurometaux level. Steven Verpaele from the Nickel Institute is the absolute expert



in this field. As it is very convenient to copy a procedure that is fully described by a team of experts, there is a real risk that national legislation and regulations will refer to the monitoring standard EN689 when they describe workplace air quality.

ICDA WEBSITE RENEWAL

The renewal has been asked for several years but hasn't materialized yet. The group discussed on what the new website should address.

A suggestion was to look at the new ILA website. The focus should be on positive communication and highlight the unique applications instead of digging in all the details of human and environmental toxicity. Ask the membership for input on a positive story on their application (unique performance of NiCd batteries, enhanced safety and lifetime through corrosion protection, PV panels for renewable energy, pigments for safety and beauty in art, end of life recycling...).

Technical data, like on toxicity, literature, meeting minutes, statistics etc. should be in a member only section.

CADMIUM MARKET INTELLIGENCE

There is indeed a need to update this information. Cadmium market analysis should be developed. Our information on market shares of the different applications dates from 2004 and is likely not accurate anymore. Paul Kolisnyk reported on market intelligence from TECK on increased use of cadmium in alloys and a decline in use for batteries. Geographical moves in the use of cadmium from China to India were reported by Paul. ICdA will make an analysis of the cadmium markets with support from Paul Kolisnyk. ICdA will consult its members on information they have on the markets they are active in and the products they put on the markets. We will also look at the mass-flows that are reported in the REACH dossier. ICdA will act as a trustee to consolidate this information to a level that assures respect for business confidential market information. A webinar will be organized in Q1 2020 to further discuss the work.

Annex I: Slides presented during Technical Session

Enjoy your Coffee break



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International Cadmium Association

Technical Session

Brussels, November 6th, 2019
11:00 -14:30

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Agenda

11.00	Welcome, Statement of Compliance
11.05	Update on REACh REACh Authorisation process and workplace limit values Initiative with German experts on workplace limit values <i>C.Canoa and N.Lombaert</i>
11:15	Amendment to the Carcinogens and Mutagens Directive (CMD) <i>M.Gilles</i>
11:30	National implementation of the Amendment to the CMD <i>M.Gilles</i>
12:00	Lunch
12:30	Reporting on monitoring of Cd in urine and blood: OCdBio-11 <i>M.Gilles</i>
13:00	Reporting on Cd in workplace air monitoring: OCdAir-6 <i>M.Gilles</i>
14:00	ICdA website revamping <i>M.Gilles</i>
14:25	A.o.b.
14:30	End of the meeting

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STATEMENT OF COMPLIANCE

- The purpose of the meeting is to address, under the applicable confidentiality rules, issues concerning Cadmium and Cadmium compounds producers and importers and more particularly their obligations under the several regulations.
- The minutes kept during the meeting will have to reflect all significant matters discussed during the meeting.
- No discussions will be held, formally or informally, during specified meeting times or otherwise, involving, directly or indirectly, express or implicit agreements or understandings related to: (a) any company's price; (b) any company's terms or conditions of sale; (c) any company's production or sales levels; (d) any company's wages or salaries; (e) the division or allocation of customers or geographic markets; or (f) customer or suppliers boycotts; or (g) any disclosure of information which may affect applicable rules on Competition Law.
- The International Cadmium Association (ICdA), as a group will make no recommendations of any kind and will not try to reach any agreements or understandings with respect to an individual company's prices, terms or conditions of sale, production or sales levels, wages, salaries, customers or suppliers.

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Update on REACH

REACH Authorisation process

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REACH/ Authorisation

- Up to now, each year, ECHA (1) adjusts scores of substances and (2) recommends substances from the SVHC-list, the highest ranked first, for being included in Annex XIV of the REACH Regulation (List of Substances Subject to Authorisation).
- This procedure is now changed at ECHA due to revision of Annex XIV recommendation process. One recommendation round will take now approximately 1.5 years
- Normally first draft of the next 10th recommendation list was announced around end-of-April.
- 10th recommendation list will now only be debated for the first time at the MSC 68 meetings of February 2020
- So far and up to now, there has been always upfront transparent communication on the priority scorings table. However, most probably and unfortunately this will not anymore be the case!
- Difficult to predict if Cd-substances (Cd(OH)₂, CdO & Cd) will be part of the 10th recommendation-list of ECHA, since 4 additional PBT and ED substances are under SVHC review which could score higher than the Cd substances.

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Draft recommendation: 10th list

If selected, the expected timing is :

- Draft 10th recommendation proposed and reviewed at MSC-68 (February 2020)
- Public consultations: March-May 2020 for 3 months, one with ECHA and another one with the Commission.
- MSC voting and submission to the Commission: October 2020
- Commission decision: fall 2022???
- From that moment there are 18 months (until the Latest Application Date - LAD) to submit an Application for Authorization (AfA) .
- If no AfA submitted, the application will have to stop after 3 years (2025) at the sunset date.

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Preparing for Authorisation

- A **third workshop** for manufacturers and also downstream users was scheduled for July 3rd, but it is proposed to be postponed to mid February due the recent news of delay on the publication of the 10th draft recommendation list
- Points for discussion at this workshop:
 - Outcome of the 10th recommendation list
 - Preparation of the 2 Public consultations
 - preparation of the Applications for Authorization (AfAs)

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Revision of the carcinogens and mutagens Directive (CMD)

Status of EU COM proposed amendment of the CMD to set an OEL for cadmium and its C&M compounds at $1\mu\text{g Cd/m}^3$ inhalable

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Status of the Amendment

- Publication date: 20 June 2019
 - DIRECTIVE (EU) 2019/983 of 5 June 2019
- Entry into force of this Directive:
 - 20 days after the publication date
 - 10 July 2019
- Transposition in to national law & regulations
 - A delay of 2 years is given:

*“Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by **11 July 2021.**”*

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CMD Amendment text

Annex III is amended as follows: in point A, the following rows are added:

Name of agent	Limit values	Transitional measures
	8 hours ^(III)	
	mg/m ³ ^(V)	
Cadmium and its inorganic compounds	0,001 ⁽¹¹⁾	Limit value 0,004 mg/m ³ ⁽¹²⁾ until ... [eight years after the date of entry into force of this Directive].

^(III) Measured or calculated in relation to a reference period of eight hours time-weighted average (TWA).

^(V) mg/m³ = milligrams per cubic metre of air at 20 °C and 101,3 kPa (760 mm mercury pressure).

⁽¹¹⁾ Inhalable fraction.

⁽¹²⁾ Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine.

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What does this mean for us

- Final OEL: **1µg/m³ inhalable** by **11 June 2027**
- **8 years transition period** with higher limit value
 - Transition to adapt was extended from 7 to 8 years
 - Transition limit set at **4µg/m³ inhalable**
 - **Compromise: 4µg/m³ respirable + BLV 2µg Cd/g creat.**
 - Only under specific conditions (see next slide)
- Deadline for transposition in national regulation:
 - **11 June 2021 (2 years delay)**
 - Member States can do this earlier...or later (not all MS respect EU deadlines)

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What does this mean for us

- Issue: timing

“Respirable fraction in those member States that implement, on the date of entry into force of this Directive, a biomonitoring system with a biologic limit value not exceeding 0,002mg/m³ Cd/g creatinine in urine.”

- Quasi impossible to make any legislative changes in such short delay.

- Tour de Force in France: new bio-monitoring limit entered before the deadline.
 - But there is now confusion on how to interpret this new biologic limit value.
- Are creative solutions possible???
- How to understand “implement”?
- Does the “biologic limit value” needs to be binding in the existing regulation?

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Important remark

- The EP gave a task to the Commission and added this explicitly to the amendment:
 - *“The EU Commission will assess by May 2022 if biologic limit values can be integrated in this Directive. If the outcome is positive, the Commission will propose a new amendment to set an alternative to the 1µg Cd/m³ workplace air limit value.”*
- *This will create for us a new opportunity to enter a combination of air- and biologic limit values in the CMD Directive before the value of 1µgCd/m³ enters into force in 2027.*
- *Highly unlikely that a revised limit value will be confirmed before May 2021 (deadline for National implementation of current CMD amendment)*

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National implementation of the Amendment of the CMD

4µg Cd/m³ Inhalable
 or
 4µg Cd/m³ Respirable
 +
 2µg Cd/g creatinine (urinary)

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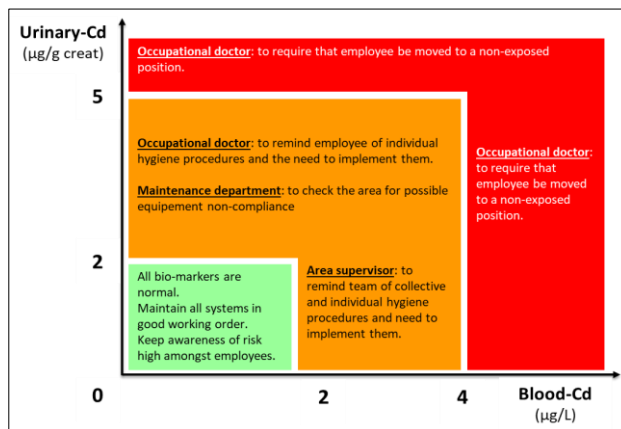
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Biologic Limit values in ICdA Guidance

- **CdU:**
 - First action level: **2 µg Cd/g creat.**
 - Second action level: **5 µg Cd/L creat.**
- **CdB:**
 - First action level: **2 µg Cd/L**
 - Second action level: **4 µg Cd/L**

Expected benefit:
 better control over CdU
 increase above 2µg Cd/g
 creatinine



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Discussion on implementation...

- Very few member states have a biologic limit value explicitly implemented in the legislation
 - Use of bio-monitoring is often mentioned in the regulations
 - Implementation of bio-monitoring is left to the discretion of plant occupational doctor
 - In practice: most (all?) plants have implemented a bio-monitoring plan (compliance with ICdA Guidance)
- ⇒ Would national authorities consider this as “implemented” to justify a respirable limit???

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Implementation

- Status in de different member states as reported to ICdA by the “country champions”
 - **UK:** Bio-monitoring in place: respirable fraction will be considered
 - **Fi:** indicative BLV in place. Some doubts if this is considered a valid condition
 - **FR:** administrative rule published to enter a BLV but different understanding by occ. Doctor on implementation
 - **It:** an indicative BLV of 5µg/g creatinine. No yet clear if a creative solution will be worked out.
 - **NL:** Limit was already set a 4µg/m³ inhalable due to a transcription error. Unfortunately no intention to correct this error at this stage.
 - **BE:** voluntary BLV in place applied by all plants but doubts if it is sufficient as a condition. Belgium prefers an EU level MS exchange on what is acceptable.
 - **ESP:** Binding BLV of 2µg Cd/g crea + OEL of 2µg Cd/m³ resp. No info received but likely, Spain will not change this.
 - **BG + CZ + S + PL:** no info received.
- All champions were asked to point their authorities to the fact that the Directive only applies to CMD compounds and as such does not apply to Cd pigments.

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Assessment of bio-monitoring

“The EU Commission will assess by May 2022 if biologic limit values can be integrated in this Directive. If the outcome is positive, the Commission will propose a new amendment to set an alternative to the $1\mu\text{g Cd/m}^3$ workplace air limit value.”

- *Assessment was confined to OSHA in Bilbao*
 - *Project leader at OSHA: Elke Schneider*
 - *Project has not started yet. Ms Schneider will contact ICdA when the work starts.*
 - *Ana Santos (H&S manager, Glencore Spain) volunteered to participate in a meeting at OSHA.*
 - *Timing: no details communicated: “OSHA needs to report on progress at the end of the year”*

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Now it is time for the
Lunch buffet



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Cadmium Occupational monitoring

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OBSERVATORIES: Monitoring Cd exposure of workers

- OCdBIO-11: results, analysis, conclusions
 - Presentation of reported data from members: CdU, CdB, and post-2000 hires subgroup
 - Conclusions
- OCdAIR-6: results, analysis, discussion
 - Presentation of reported data from members
 - Conclusions
- Way forward

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OCdBio

Observatory of Occupational Cadmium Bio-monitoring

Results of the 2018 data collection

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OCdBio - Occupational Cadmium Bio-monitoring Observatory

- ❑ Since 2008, Cd bio-monitoring data is collected in the Cd industry in order to convince ourselves and authorities on:
 - the efficiency of our risk management program
 - the compliance of the current exposure levels with the OELs
- ❑ It is interesting for ICdA members to compare their own data with aggregated data from the whole Cd using industry
- ❑ A meaningful follow-up requires:
 - A long-term involvement of the companies; currently 11 year of follow-up!
 - A strong coverage of EU industrial sites: in 2018 we received reporting from **4.566 workers on 38 sites!!!**

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Selected biomarkers of exposure

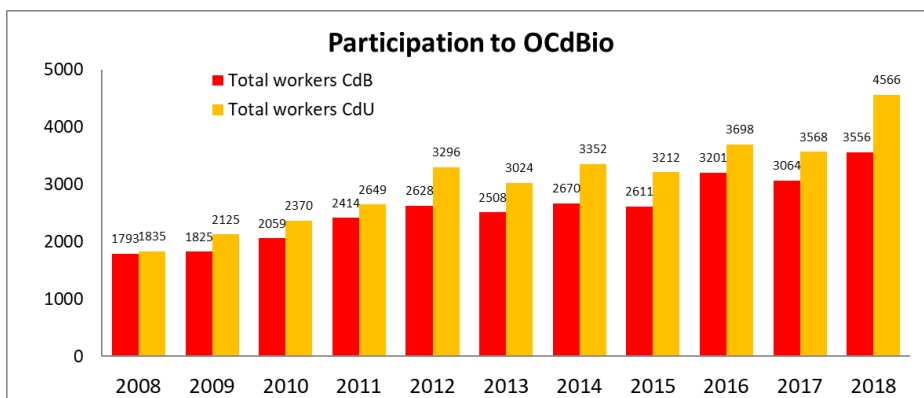
- ❑ Cadmium in blood – CdB:
 - indicator of recent (and older) exposure
 - Measurement: Cadmium in whole blood ($\mu\text{g Cd/L}$)
- ❑ Cadmium in urine – CdU:
 - Biomarker of the amount of Cd stored in the body and in particular in the kidney cortex where the first signs of Cd toxicity develop
 - Representative for cumulative cadmium absorption in the body over past 20 years
 - Normalized measurement: Cadmium in urine ($\mu\text{g Cd/g creatinine}$)
 - Study Prof. Van Maele demonstrated that Cd is a threshold carcinogen for systemic effects with urinary limit value
 - ⇒ CdU is an indicator to demonstrate zero risk of systemic cancers
 - ⇒ Lung cancer is not covered by this indicator!!! => OEL (air) required.

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Number of reported workers

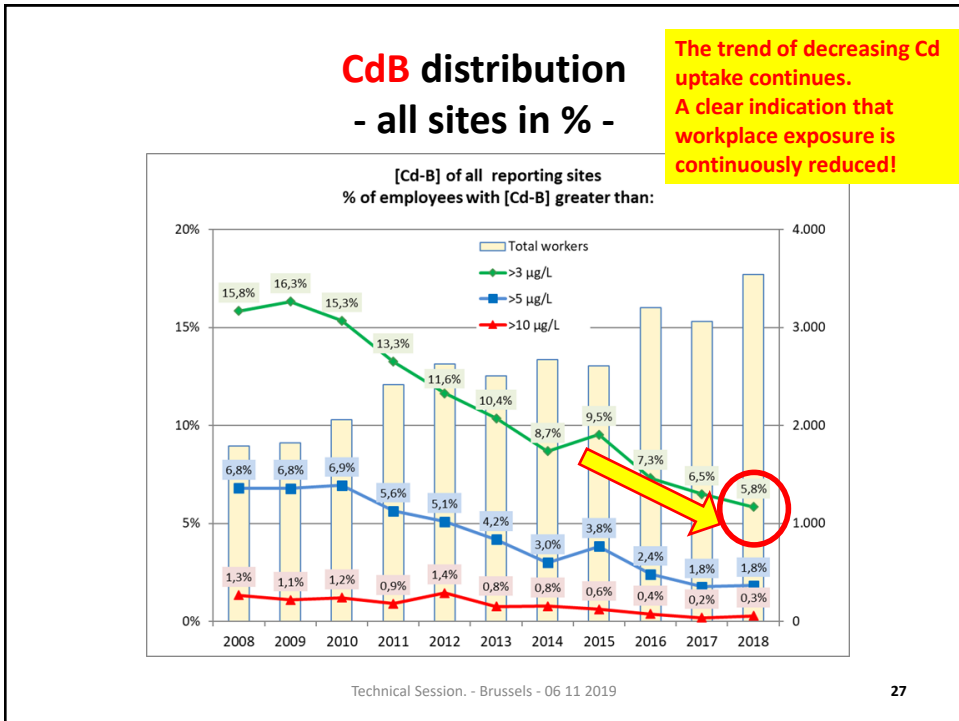


- Firm growth of response in 2018
- Mainly related to new participation by non-ferrous metal recycling plants where cadmium is a contaminant in the processed scrap and waste.

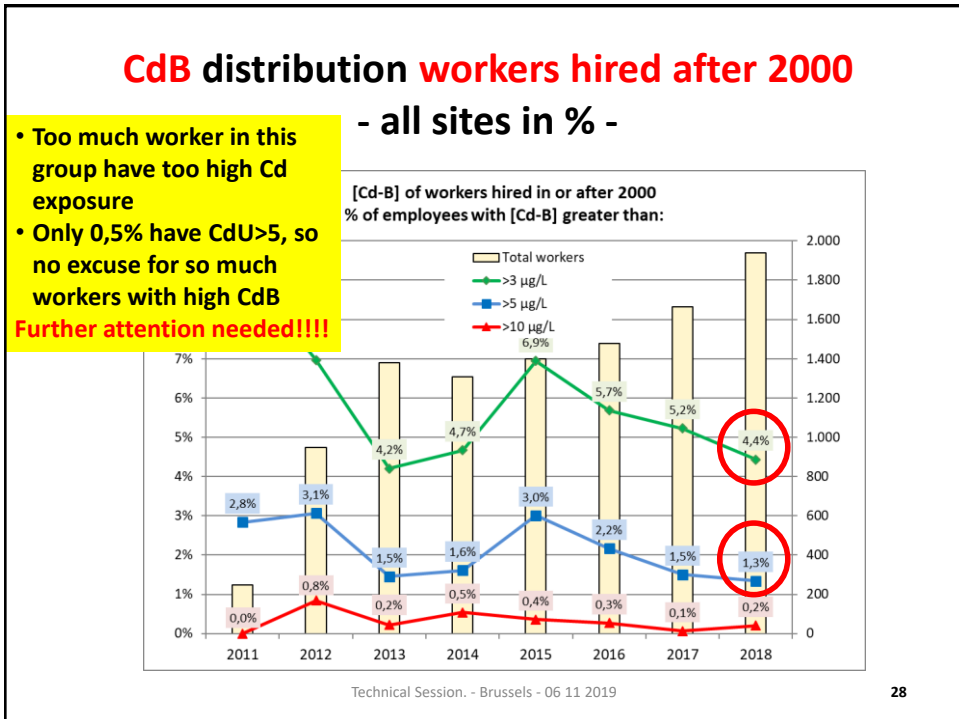
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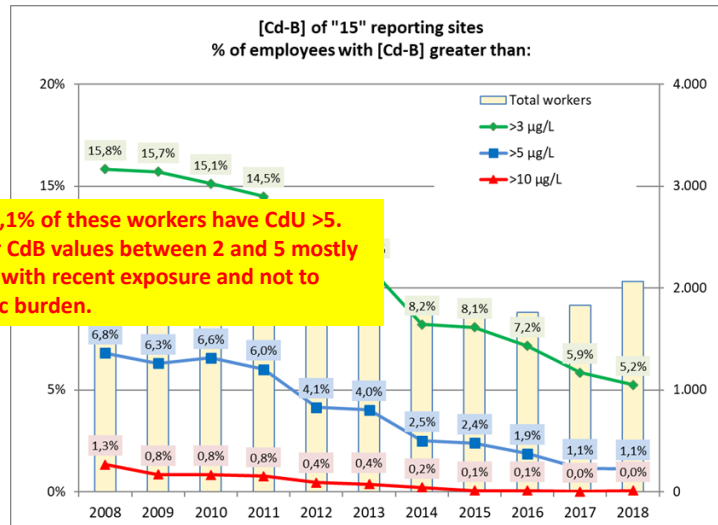


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CdB distribution original "15"



- Only 1,1% of these workers have CdU >5.
- Higher CdB values between 2 and 5 mostly linked with recent exposure and not to historic burden.

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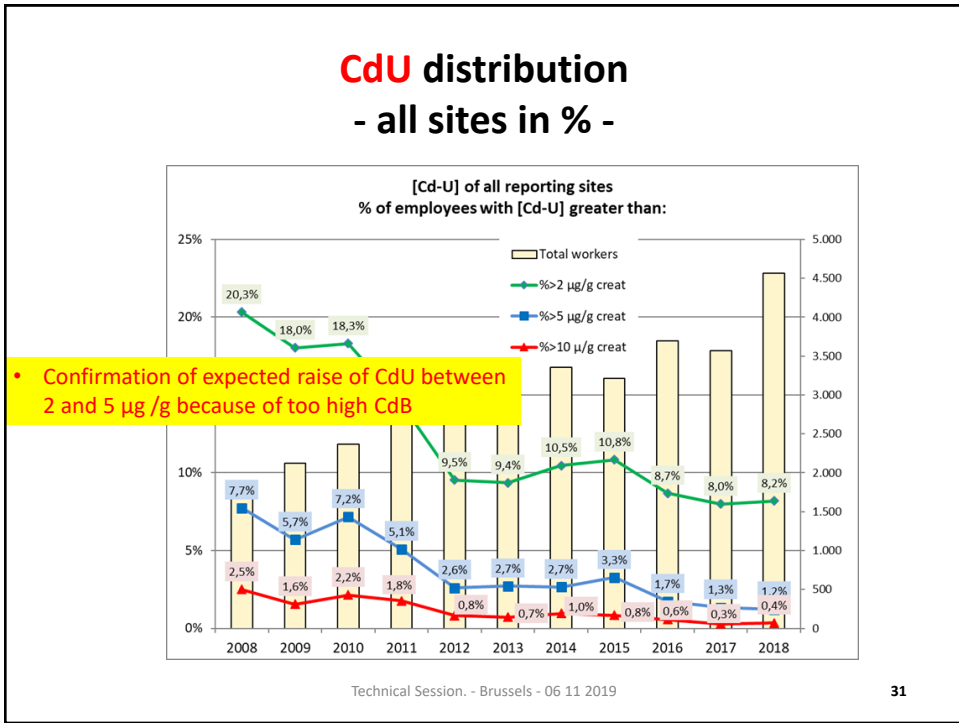
Cd in Blood: conclusion

- ❑ Good progress was made: Exposure of workers was reduced in 2018
- ❑ But...
 - Still too many workers have too high level of exposure to keep (or bring) them below the target of 2µg Cd/g creatinine.
 - Comparison with CdU data shows that increased CdB values are most often not related to high historic burden => sign of too high recent exposure
- ❑ Future compliance with BLV of 2µg Cd/g creatinine?
 - We should keep all workers below 5 µg Cd/L in blood
 - We should strive not to have more than 1% workers above 3 µg Cd/L in blood (max.1% excused because of historic cadmium body burden)
- ❑ Continued efforts are required to reduce exposure and comply with the new upcoming exposures limits.

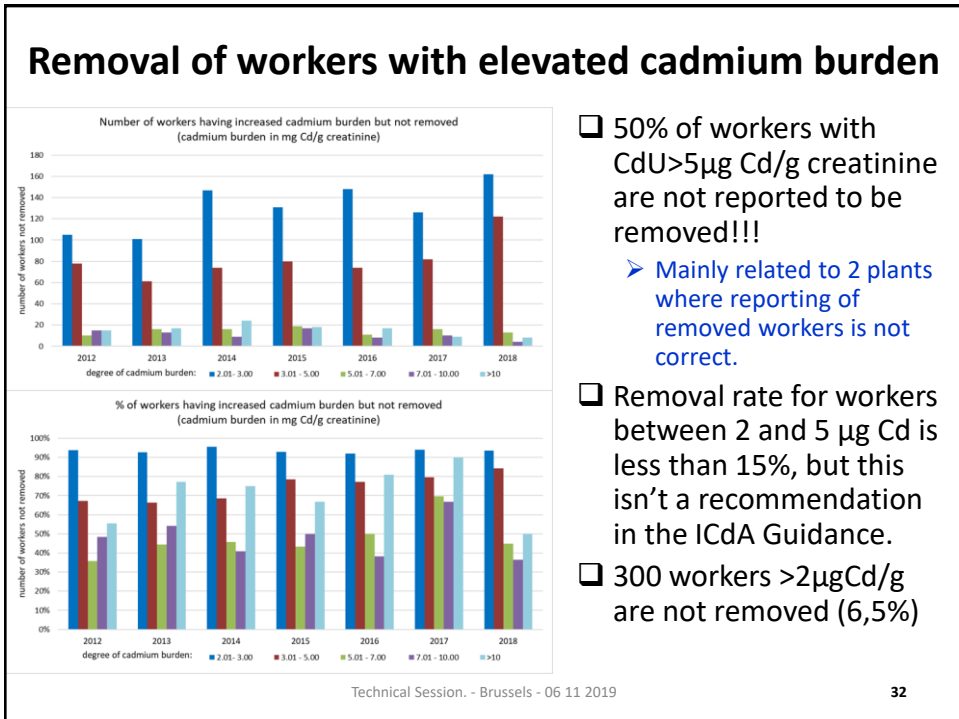
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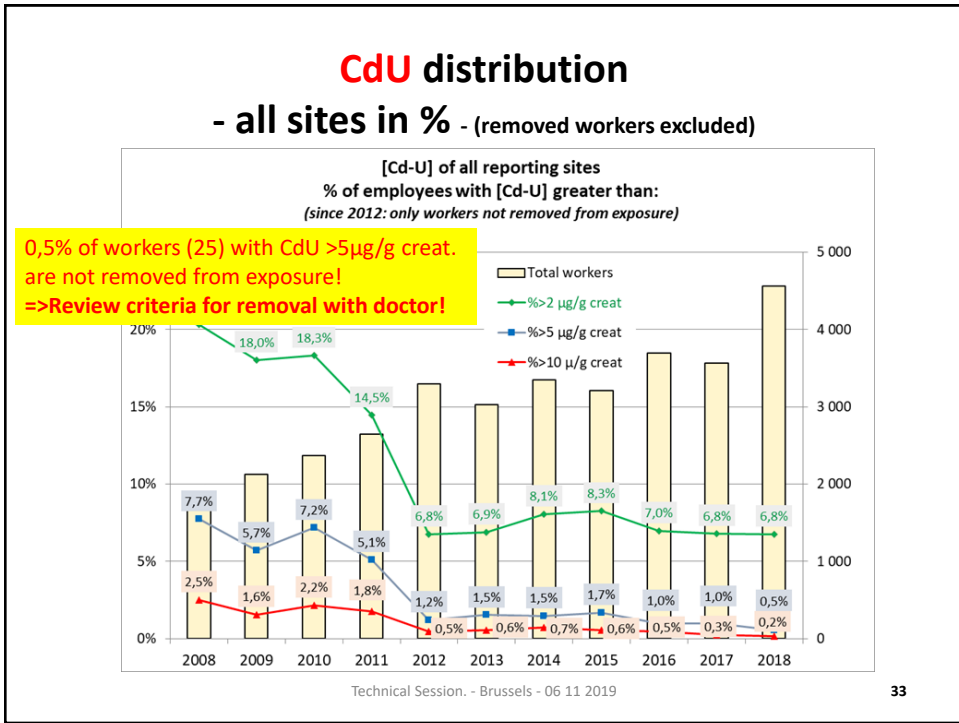
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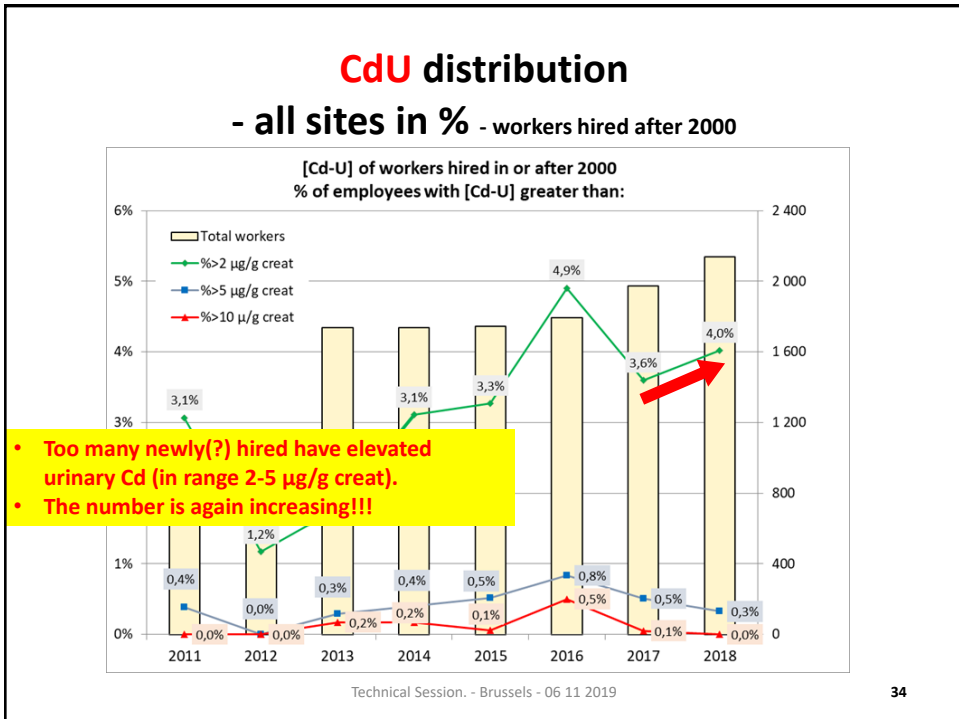
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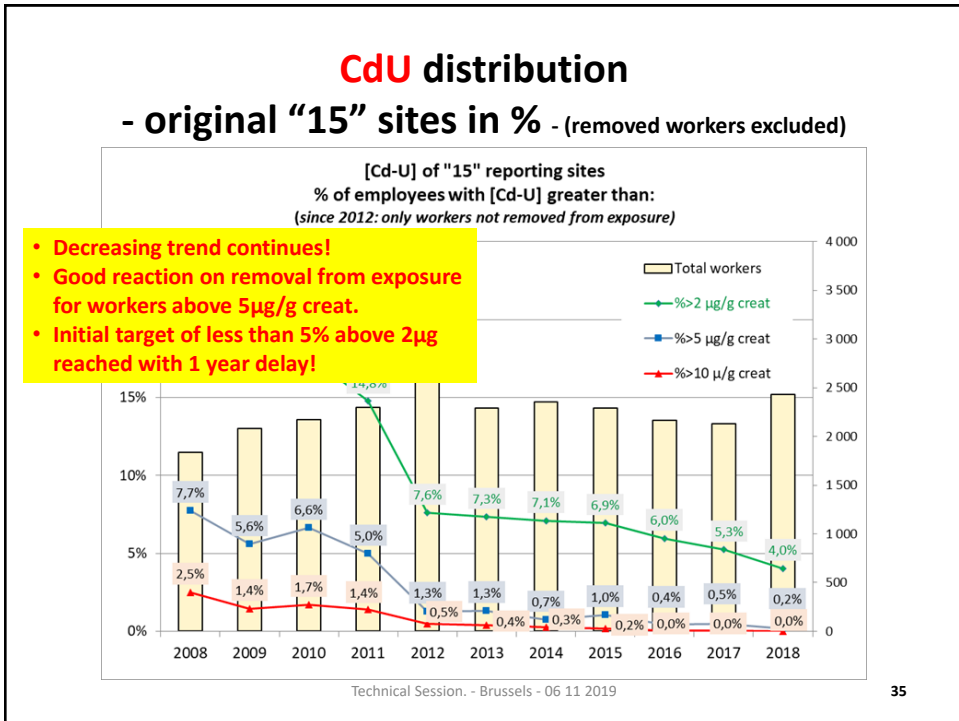
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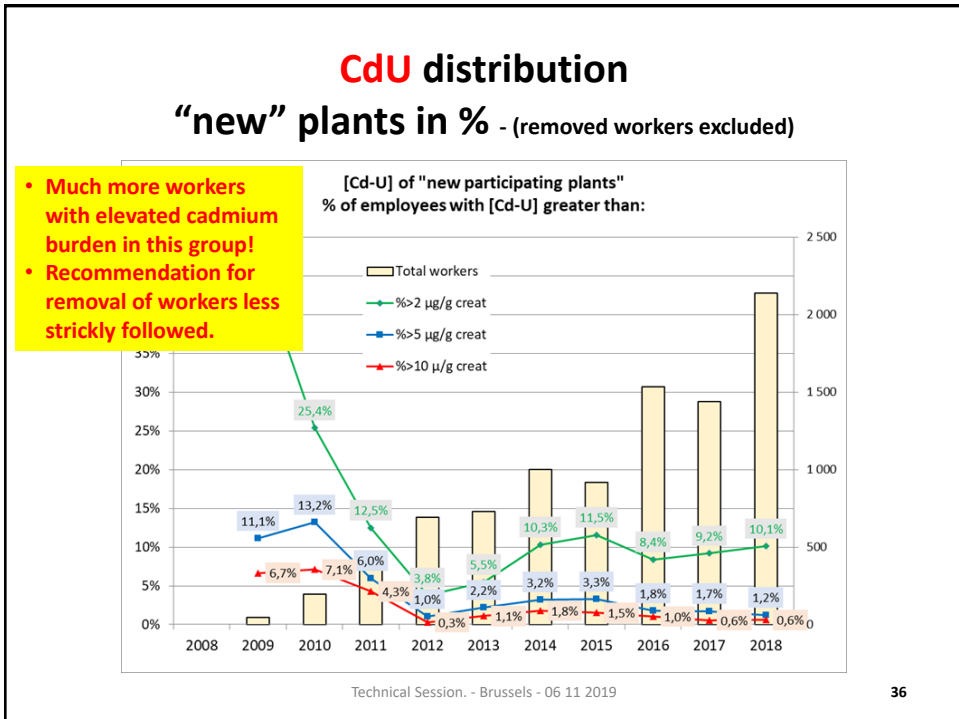
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Conclusion

☐ Cd in blood

- Over the past 10 years, our industry has consistently improved the workplace exposure of its workers...and these efforts should continue
- exposure to Cd is continuously going down but levels are likely too high to keep all workers <2µg Cd/g creat.

☐ Cd in urine

- Increase of workers in the segment 2-5 µg Cd/g creatinine at plants that joined the reporting after 2012!!!
- 25 workers with CdU > 5 µg Cd/g creatinine are not removed from exposure
 - Apply correct reporting of removed workers.
 - Check assessment procedures with doctor.
- Should we adapt criteria for removal in the ICdA Guidance?
 - 2µg Cd/g creatinine?

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Recommendations

ICdA suggest two recommendations regarding biomonitoring:

- There are still too many workers with CdU > 5 µg/g creatinine who have not been removed from exposure. This recommendation of removal is not adequately implemented in the new participating plants sub-group (25 for all plants, of which 4 in the "original 15" group and 21 in the "new participating plants" group).
 - **ICdA recommends that these workers be reassigned to non-exposed workplaces.**
- The number of recent hires (2000 and later) with CdU > 2 is observed to be 4% when industry goal is 2% for the whole workforce. This is too high a number and means that current implementation of the Guidance is still unsatisfactory.
 - **ICdA recommends to its members that all aspects of the Guidance be implemented in a more thorough manner.**

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OCdAIR-6

Occupational Cadmium Air-monitoring Observatory

2018 monitoring results

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OCdAir-6

- Personal air sampling at the workplace
 - Sixth year of data collection
 - Lower response related to earlier data collection

	2013	2014	2015	2016	2017	2018
Plants	12	22	20	16	25	23
SEGs	67	142	131	124	162	165
Workers	994	1548	1369	1278	2249	1857

- Sampling quality improved
 - More samples for each SEG
 - All measures mentioned respirable(16), inhalable(1) or total (6) fraction
 - Correction for Personal Protection Equipment during sampling

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Degree of response for air monitoring

	OCdBio11	OCdAir5	OCdAir6	Identified plants
Zn smelters w/o Cd refining	100%	100%	83%	6
Zn smelters w Cd refining	80%	40%	40%	5
Battery manufacturers	100%	86%	86%	7
Recyclers	80%	40%	40%	10
Others	76%	41%	35%	17
Total	84%	56%	51%	45

- Why is annual reporting lacking from so many plants?
 - Binding OEL values are already in place in all member states
 - No problem of access to data like in bio-monitoring where doctors can be reluctant to share (anonymously) the information.
- Observation: most of these plants haven't done air monitoring. What could be the cause?
 - A monitoring plan that allows a valid statistical assessment is more complex than taking a urine sample. Even reporting the information to ICdA seems to be too complex for some.
 - Subcontracting workplace monitoring is more expensive than bio-monitoring.
 - Low degree of inspection and enforcement by competent authorities make plants H&S managers think there is no need to monitor.
 - Some might consider that a few (low) measurements in the past are sufficient to demonstrate that exposure is sufficiently low.

What can ICdA do improve the situation?

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OCdAir-6

- **ICdA guidance:**
 - Workplace air quality should be under control to assure $< 4\mu\text{g Cd/m}^3$ respirable air, always and for all workers
- **Amendment of Carcinogens and mutagens directive:**
 - In absence of biomonitoring: $< 4\mu\text{g Cd/m}^3$ inhalable air.
 - With biomonitoring: $< 4\mu\text{g Cd/m}^3$ respirable air.
- **Compliance with an OEL: several statistical criterial are possible**
 - Geometric mean
 - 90 percentile
 - According to EN689 (70 confidence interval of the 95 percentile)

In several (but not all) member states, there is a reference to EN689

=> Check how to demonstrate compliance in your country.

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Geometric mean

Geomean	- OCd-AIR 2-		- OCd-AIR 3-		- OCd-AIR 4-		- OCd-AIR 5-		- OCd-AIR 6-	
	2014		2015		2016		2017		2018	
Range [$\mu\text{g}/\text{m}^3$]	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers
0 to 0.25							463	69	1172	801
0 to 1.0	94	1148	38	753	78	1002	133	2014	122	1552
1.1 to 2.0	26	241	10	88	22	167	10	116	13	118
2.1 to 3.0	5	35	3	40	6	22	5	29	5	71
3.1 to 4.0	8	57	1	9	1	4	2	10	3	19
4.1 to 5.0	3	18					4	31	1	11
5.1 to 7.0	2	38	1	29	3	21	2	17	1	9
7.1 to 10.0	1	5	1	4	4	33				
>10.1	3	6					2	4		
other non-compliant			7	35	1	2				
non-conclusive			70	411	12	114	4	28	20	126
Total number	142	1548	131	1369	127	1365	162	2249	165	1857

Degree of Compliance:

- 87 % SEGs
- 92% workers

Less good compliance compared to 2017.

- difference is mainly in "non-conclusive". (=insufficient number of samples)

But: exceedances are less than in 2017.

Geomean	% of SEGs in this range					Geomean	% of workers in this range				
Range [$\mu\text{g}/\text{m}^3$]	2014	2015	2016	2017	2018	Range [$\mu\text{g}/\text{m}^3$]	2014	2015	2016	2017	2018
< 4	94%	40%	84%	93%	87%	< 4	96%	65%	88%	96%	92%
non-conclusive	0%	53%	9%	2%	12%	non-conclusive	0%	30%	8%	1%	7%
4 <=> 7	4%	1%	2%	4%	1%	4 <=> 7	4%	2%	2%	2%	1%
7 <=> 10	1%	1%	3%	0%	0%	7 <=> 10	0%	0%	2%	0%	0%
> 10	2%	0%	0%	1%	0%	> 10	0%	0%	0%	0%	0%
other non-compliant	0%	5%	1%	0%	0%	other non-compliant	0%	3%	0%	0%	0%
total	100%	100%	100%	100%	100%	total	100%	100%	100%	100%	100%

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90 percentile

90 percentile	- OCd-AIR 3-		- OCd-AIR 4-		- OCd-AIR 5-		- OCd-AIR 6-		
	2015		2016		2017		2018		
Range [$\mu\text{g}/\text{m}^3$]	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	
0 to 0.25					137	4	427	17	323
0 to 1.0	13	267	37	339	63	997	67	812	
1.1 to 2.0	9	147	19	439	19	331	18	176	
2.1 to 3.0	5	21	16	149	14	291	6	97	
3.1 to 4.0	4	48	7	48	4	53	8	132	
4.1 to 5.0	2	8	7	54	5	39	4	73	
5.1 to 7.0	2	21	3	46	5	17	7	155	
7.1 to 10.0	2	49	3	19	5	40	6	52	
>10.1	6	143	7	48	7	40	2	15	
other non-compliant	5	17							
non-conclusive	83	648	28	309	40	441	67	405	
Total number	131	1369	127	1451	162	2249	165	1857	

Degree of Compliance:

- 60 % SEGs
- 65% workers

Less good compliance compared to 2017.

More exceedances than in 2017, but less above $10\mu\text{g}/\text{m}^3$.

90 percentile	% of SEGs in this range				90 percentile	% of workers in this range			
Range [$\mu\text{g}/\text{m}^3$]	2015	2016	2017	2018	Range [$\mu\text{g}/\text{m}^3$]	2015	2016	2017	2018
< 4 $\mu\text{g}/\text{m}^3$	24%	62%	62%	60%	< 4 $\mu\text{g}/\text{m}^3$	35%	67%	74%	65%
non-conclusive	63%	22%	25%	28%	non-conclusive	47%	21%	20%	22%
4 <=> 7	3%	8%	6%	7%	4 <=> 7	2%	7%	2%	10%
7 <=> 10	2%	2%	3%	4%	7 <=> 10	4%	1%	2%	3%
> 10	5%	6%	4%	1%	> 10	10%	3%	2%	1%
other non-compliant	4%	0%	0%	0%	other non-compliant	1%	0%	0%	0%
total	100%	100%	100%	100%	total	100%	100%	100%	100%

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EN 689 (70% conf. interval of the 95 percentile)

	- OCd-AIR 3-		- OCd-AIR 4-		- OCd-AIR 5-		- OCd-AIR 6-	
EN689	2015		2016		2017		2018	
Range [$\mu\text{g}/\text{m}^3$]	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers	number of SEGs in this range	Number of workers
0 to 0.25			463	7	158	4	77	
0 to 1.0			4	28	21	505	24	378
1.1 to 2.0	3	49	6	235	13	124	17	162
2.1 to 3.0			4	181	13	353	9	124
3.1 to 4.0	9	208	21	124	31	459	24	188
4.1 to 5.0			2	12	6	124	6	104
5.1 to 7.0			4	83	4	34	3	43
7.1 to 10.0			3	22	5	41	9	99
>10.1	1	18	6	104	15	92	8	166
other non-compliant	16	190	11	65			5	72
non-conclusive	102	904	66	597	54	517	61	521
Total number	131	1369	127	1451	162	2249	165	1857

Degree of Compliance:

- 45 % SEGs
- 46% workers

Less good compliance compared to 2017.

More exceedances than in 2017.

Many non-conclusive

=>more sampling needed!!!

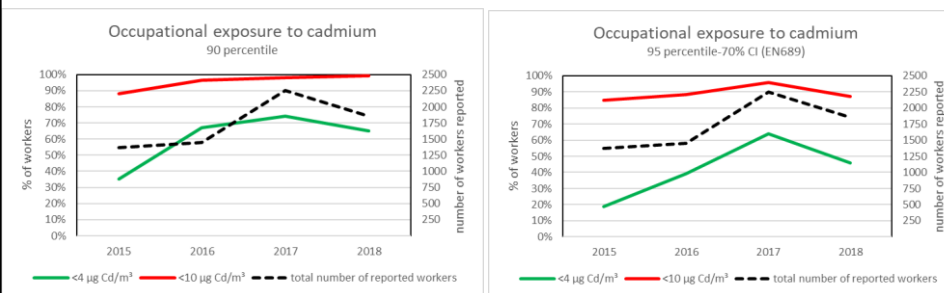
EN689	% of SEGs in this range				EN689	% of workers in this range			
Range [$\mu\text{g}/\text{m}^3$]	2015	2016	2017	2018	Range [$\mu\text{g}/\text{m}^3$]	2015	2016	2017	2018
<4 $\mu\text{g}/\text{m}^3$	9%	28%	48%	45%	<4 $\mu\text{g}/\text{m}^3$	19%	39%	64%	46%
non-conclusive	78%	52%	33%	36%	non-conclusive	66%	41%	23%	28%
4 <=> 7	0%	5%	6%	5%	4 <=> 7	0%	7%	7%	8%
7 <=> 10	0%	2%	3%	5%	7 <=> 10	0%	2%	2%	5%
> 10	1%	5%	9%	5%	> 10	1%	7%	4%	9%
other non-compliant	12%	9%	0%	3%	other non-compliant	14%	4%	0%	4%
total	100%	100%	100%	100%	total	100%	100%	100%	100%

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Summary OCdAir



- Although exposure was reduced in 2018, the statistical assessment shows a different outcome.
 - The calculated 90 percentile and the value according to EN689 often push the results towards higher concentrations when the number of samples is low.
 - When your assessment is according to EN689 or the 90 percentile value, it is very important to collect a sufficient number of samples.

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Conclusion and recommendation

- The number of companies reporting into OCdAIR (22) is low compared with the number of companies reporting to OCdBIO (38). This seems to indicate that a systematic yearly assessment of compliance with workplace air limit is not conducted for approximately half the exposed workforce.

ICdA urges all members to implement yearly air quality monitoring and report the resulting data to the Association.

- When using the 95th percentile/70% confidence interval which is the recommended methodology (and in some instances the legal methodology) in several EU MS, compliance is rather weak. This is probably a key factor in the prevalence of elevated CdU in recently hired workers (4% of post-2000 hires demonstrate CdU >2). This has the result of pushing back compliance with the target of 2% exceedance (above 2 µd/g creatinine) level beyond a visible time horizon.

ICdA recommends that its members implement the necessary steps to increase compliance with the 4 µg/m³ (inhalable fraction) OEL.

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Communication

Revamping of the ICdA website

<https://www.cadmium.org/>

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Revamping: what do we want to achieve?

- Who do we want to address? (and who not)
 - Policy makers (national, EU, world)
 - Influencers (NGO's, academics)
 - Customers & users
 - General population
- What are the messages we wish to bring?
 - Legislation (which regions to cover?)
 - Toxicity: Human and environment
 - Risks: occupational exposure, general population, recycling
 - Uses: highlighting the unique properties
 - Trade information, on a worldwide level, details on regions.
- What information should be in the “members only” section?
- Which info from our monitoring programs could we share?
- What is out of our scope?

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Website layout and structure

- Layout
 - Today, it has more the looks of leaflet for a medicine
 - Informative but not very attractive to read
 - Almost no illustrations
 - 5 graphs and 4 images
 - Any suggestions of great looking existing websites to inspire us?
- Structure
 - No interlinking between the different sections
 - The ICdA Guidance can be found in a side window under news but no reference to it in the section on exposure.
 - The ICdA Code of Conduct can only be found under Membership

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Today's Website Content

- Home
- Introduction
 - [general info on cadmium](#), [needs a review](#)
- Applications: [content of all sections need an update, input from members in each segment required](#)
 - Batteries
 - Pigments
 - stabilizers
 - Coatings
 - Alloys and others
- Environment: [update needed](#)
 - References: [list of literature A-Z](#)
 - [cadmium emissions](#)
 - [Level of cadmium in the environment](#)
 - [cadmium exposure and human health](#)
- Recycling: [very little information](#)
- Cadmium and the future [update needed](#)
- “Members only”: [this extensive section is not kept up-to-date](#)
- Market data: [only in “members only” section and latest info is from 2004](#)

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Cadmium Market Intelligence

Update on use of cadmium
in the different applications

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Before starting the General Assembly...

- A.o.b.
- Closing of the meeting

Coffee break



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